Microchannel scaffolds and microtube electrodes for a neural interface system

This invention develops a neural interface that connects the peripheral nervous system with external devices, such as prosthetic limbs, and provides a direct communication pathway between the two. This invention leverages on a microchannel integrated neural network device and a system which can control the reinnervated muscles and interpret neurological signals that can then be used for the interpretation of mind and create a neural map.

Problem

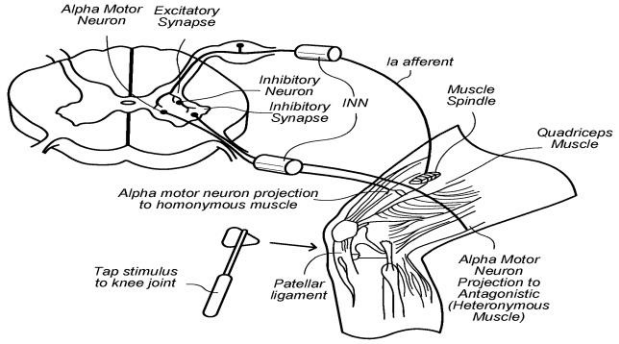
Although cultured neuronal networks have shown a variety of mechanism of neuronal functionality, individual neuron interfaces have not yet been introduced during in vivo animal studies. State-of-the art electrophysiological techniques can only access a group of neurons, and this makes modality specific applications difficult.

Solution

With this technology, bi-directional individual neuron communication can be achieved using the proprietary peripheral nerve interference.

The University of Texas Rio Grande Valley
Office of Technology Commercialization

Neural Connection



Value Proposition

This novel technology provides direct communication between prosthetic limbs and peripheral nerves by utilizing microchannel PDMS scaffolds for nerve regeneration and microtube electrode for individual neuron communication.

Competitive Advantages

- Advances rehabilitation capabilities of disabled individuals
- Nerve regeneration through microchannel scaffolds
- Direct neuron communication using microtube electrodes
- Bio-degradable materials used

Status of Development

- Prototyping stage

IP Status

- Patent # US20200054229 A1
- Licensing available

For further information regarding this Technology please contact:
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